

CLAIMS:

1. An opto-electronic input device (10), wherein the input is formed by detected movements of an object (M), which input device is provided with an optical module (11) comprising at least one laser (1) with a resonant cavity for generating a measurement radiation beam (S), optical means (2) for guiding the radiation beam (S) to a plate (V) close
5 to the object (M), and conversion means (C) for converting radiation from the measurement radiation beam (S), which is reflected by the object (M), into an electric signal, wherein the conversion means (C) are formed by the combination of the resonant cavity of the laser (1) and measurement means (3) for measuring a change in the resonant cavity during operation, which change is caused by interference of the reflected radiation from the measurement
10 radiation beam (S), which penetrates the resonant cavity, and the standing wave in the resonant cavity, and which is representative of a relative movement of the object (M) with respect to the module (11), wherein the optical module (11) comprises the laser (1) mounted on a carrier plate (4), and the optical means (2) comprise an optical component (2) mounted on the carrier plate (4) and aligned with the laser (1), from which optical component the
15 measurement radiation beam (S) emitted by the laser (1) travels to the plate (V) close to the object (M), characterized in that the plate (V) comprises, close to the object (M), a first portion (V1) which is situated within a projection of the object (M) and allows passage of the radiation beam (S) and is situated in a fixed position with respect to the carrier plate (4), as well as a second portion (V2) which is situated within a projection of the object (M) and is
20 movable in a direction perpendicular to the carrier plate (4) and comprises signaling means which, in the case of movement in the direction perpendicular to the carrier plate (4), issue a signal that can be perceived by a user of the device (10) with one of his senses.
2. An opto-electronic device (10) as claimed in claim 1, characterized in that the
25 signaling means comprise a press button (5) which springs back after it has been pressed, and which provides an experience for the tactile sense of the user when it is pressed.
3. An opto-electronic device (10) as claimed in claim 2, characterized in that the press button (5), upon being pressed, emits an acoustic signal that can be heard by the user.

4. An opto-electronic device (10) as claimed in claim 2 or 3, characterized in that the press button (5) comprises a thin, bent membrane of steel.
- 5 5. An opto-electronic device (10) as claimed in claim 3 or 4, characterized in that the device comprises a microphone (33) by means of which the acoustic signal is converted to an electric signal.
6. An opto-electronic device (10), characterized in that the electric signal is used
10 to wake up the device from an energy-saving sleep mode.
7. An opto-electronic device (10) as claimed in claim 2, 3, 4, 5 or 6, characterized in that the first portion of the plate (V1) comprises a round, transparent, block-shaped body (6) which is attached onto the carrier plate (4), and the press button (5)
15 comprises, in the center thereof, a round opening (5A) within which the block-shaped body (6) is situated, the upper face of said block-shaped body being substantially flush with an upper face of the press button (5), or being situated so much lower as is necessary to enable the press button (5) to be pressed.
- 20 8. An opto-electronic device (10) as claimed in claim 2, 3, 4, 5 or 6, characterized in that the first portion of the plate (V1) comprises a ring-shaped, transparent, block-shaped body (6) which is attached onto the carrier plate (4), and the press button (5) is situated within the block-shaped body (6) the upper face of which is substantially flush with an upper face of the press button (5).
- 25 9. An opto-electronic device (10) as claimed in claim 7 or 8, characterized in that, near a lower side of the transparent block-shaped body (6), the measurement radiation beam (S) is introduced into said transparent block-shaped body at an angle such that the measurement radiation beam (S) moves spirally to an upper side of the block-shaped body
30 (6).
10. An opto-electronic device (10) as claimed in any one of the preceding claims, characterized in that the dimensions of the portions (V1, V2) of the plate are suitable for an object (M) that is formed by a human finger.

11. An opto-electronic device (10) as claimed in any one of the preceding claims, characterized in that the laser (1) is attached onto the carrier plate (4) in such a manner that the resonant cavity of the laser is parallel to said carrier plate.

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12. A method of measuring the movement of an object (M) relative to an input device (10), characterized in that for this purpose use is made of an opto-electronic input device (10) as claimed in any one of the preceding claims.

10 13. A method as claimed in claim 10, characterized in that the object (M) is formed by a finger of a human user of the device.

14. A method of manufacturing an opto-electronic input device (10), wherein the input is formed by detected movements of an object (M); which input device is provided with
15 an optical module (11) comprising at least one laser (1) with a resonant cavity for generating a measurement radiation beam (S), optical means (2) for guiding the radiation beam (S) to a plate (V) close to the object (M), and conversion means (C) for converting radiation from the measurement radiation beam (S), which is reflected by the object (M), into an electric signal, wherein the conversion means (C) are formed by the combination of the resonant cavity of
20 the laser (1) and measurement means (3) for measuring a change in the resonant cavity during operation, which change is caused by interference of the reflected radiation from the measurement radiation beam (S) penetrating the resonant cavity and the standing wave in the resonant cavity, which is representative of a relative movement of the object (M) with respect to the module (11), wherein the optical module (11) is formed by a carrier plate (4) on which
25 the laser (1) is mounted, and the optical means (2) are formed by an optical component (2), mounted on the carrier plate (4) and aligned with the laser (1), for the measurement radiation beam (S) emitted by the laser, which measurement radiation beam is guided from said location to the plate (V) close to the object (M), characterized in that, near the object (M), the plate (V) is formed in two portions (V1, V2), i.e. a first portion (V1) situated within a
30 projection of the object (M) is designed so as to transmit the radiation beam (S) and is arranged in a fixed position with respect to the carrier plate (4), and a second portion (V2) situated within a projection of the object (M) is formed so as to be movable in a direction perpendicular to the carrier plate (4) and is provided with signaling means which, in the case

of a movement in a direction perpendicular to the carrier plate (4), emit a signal that can be perceived by one of the senses of the user of the device.